

Appl. No.: 10/574,700

Amdt. Dated February 29, 2008

Response to Office Action Mailed November 1, 2007

REMARKS:

Applicant appreciates the time and care the examiner has taken in examining the application. Applicant requests reconsideration of the final rejection of the claims, and states the following in support.

Amendments to the Claims. In the claim amendments presented above, claims 3-5 and 9-14 have been cancelled. Claim 6 is amended, and is now presented as the sole independent claim. Claims 7-8 are presented again, without amendment. Claims 6-8 are pending.

Response to Rejection under Section 103(a). It is respectfully submitted that the invention set forth in claims 6-8 presented above is not rendered obvious by the combination of references cited by the examiner. Comments in the previous response are incorporated herein by reference.

The examiner has recognized that O.J.M. Smith, U.S. Pat. No. 3,483,463 (hereinafter "Smith") fails to disclose a permanent magnet type electric power generator driven by a windmill or waterwheel, and the second winding being connected in series to a saturated reactor comprising a core that becomes saturated as alternating current power input from said second winding to said core is increased, whereby an inductance value of the reactor decreases as the alternating current power input to said core from said second winding increases, said saturated reactor being connected to a second rectifier. The Examiner concluded that the above difference between the invention as claimed and Smith was disclosed by Kawazoe et al and Kawasuji et al.

It is submitted that Kawazoe et al and Kawasuji et al fail to disclose the claimed features missing in Smith to yield the contents of amended claim 6 herein. Kawazoe et al uses one AC

generator and two converters. Kawazoe's object is to utilize both the active power component and the reactive power component by controlling them at a full possible range, namely at a maximum percentage. To achieve this object, Kawazoe et al employs many complicated components, for instance:

- rotation speed detection circuit 21,
- three phase bridge circuit,
- 6 self-commutating semiconductor elements, and
- 6 diodes.

The above items are needed to form:

- A reactive power command value setting circuit,
- An active power control circuit,
- A reactive power control circuit, and
- A converter control circuit.

In short, Kawazoe et al uses a single AC output and tries to control it with its active component and reactive components for obtaining the highest efficiency. The device of Kawazoe et al requires many components, including a speed detector, all of which increase the cost and the complexity of the device as compared to the invention as herein claimed. In contrast, claim 6 herein is a partially-closed claim for the apparatus consisting essentially of a minimum number of components to yield a low cost generating apparatus utilizing natural power from a windmill or waterwheel. It would not have been obvious to combine Smith with Kawazoe et al to yield the instant invention, because, in the present invention, instead of controlling or detecting rotation speed of the generator, two kind of windings are used and only diodes, which are of the simplest construction and obtained at lower cost, and one saturating reactor, are used.

In particular, FIG. 4 herein shows how, depending upon the strength of obtainable input power like wind speed, either one of two windings are mainly used, to avoid a complicated

construction, wherein when the number of the revolutions is below a specified value, output from the second winding is used, and when the number of the revolutions exceeds said specified value, output from the first winding and output from the second winding are used, whereby a total output from the first winding and the second winding is approximately equal to the maximum output curve relative to the number of the revolutions.

With respect to the saturated reactor lacking in Smith and found by the examiner in Kawasuji et al, as shown in Kawasuji's FIG. 1, the diagram; in FIG. 2, the B-H characteristic of the saturable reactor; and the discussion at col. 5 lines 27-45, the saturable reactor of Kawasuji et al teaches how to control the saturation point of the coil by using a subsidiary coil 3. Whereas, in contrast, in the present invention as set forth in claim 6, the inductance value of the reactor 13 decreases gradually by an increase of current after one point as shown in the diagram of FIG. 5; as specified in claim 6, the core becomes saturated as alternating current power input from the second winding to the core is increased to exceed a certain value, and then the inductance value of the reactor decreases gradually as the alternating current power input to said core from said second winding increases. The structure of Kawasuji et al fails to supply this feature in order to yield the claimed combination.

By using this characteristic feature of the reactor 13, as shown in FIG. 3, an output is achieved which closely approximates the maximum of obtainable power in the range of revolutional speed being obtained by outer input, like wind speed. The ideal output is shown by a cubic function curve in FIG. 3. (*See also* specification, page 7, lines 24-31).

Thus, it would not have been obvious to combine the respective features of the three cited references to yield the claimed combination set forth in amended claim 6.

Therefore, it is respectfully submitted that the rejection under Section 103(a) should be reconsidered and withdrawn; that application is in condition for prompt allowance; and that all of the objections, rejections and requirements raised in the Office action have been met. Early, favorable treatment of this application is requested.

The examiner is encouraged to telephone Robert Schneider with any questions or comments so that efforts may be made to resolve any remaining issues.

Extension Request and Deposit Account Charge Authorization. The Commissioner is hereby authorized to charge any required fees, or credit any overpayment, associated with this communication, including fees for any necessary extension of time under 37 CFR §1.136(a) for filing this communication, which extension is hereby requested, to our Deposit Account No. 50-0305 of Chapman and Cutler LLP.

Respectfully submitted,

By: 

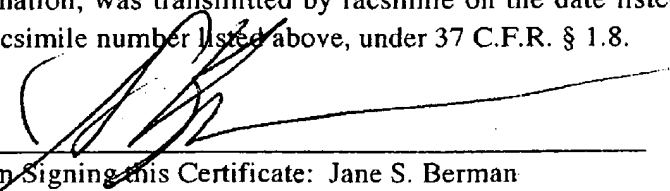
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CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. § 1.8

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I hereby certify that the attached correspondence, namely: Amendment and Reply with Request for Continued Examination, was transmitted by facsimile on the date listed above, to the U.S. Patent Office at the facsimile number listed above, under 37 C.F.R. § 1.8.

Signature: 

Typed Name of Person Signing this Certificate: Jane S. Berman

Date of Signature: February 29, 2008